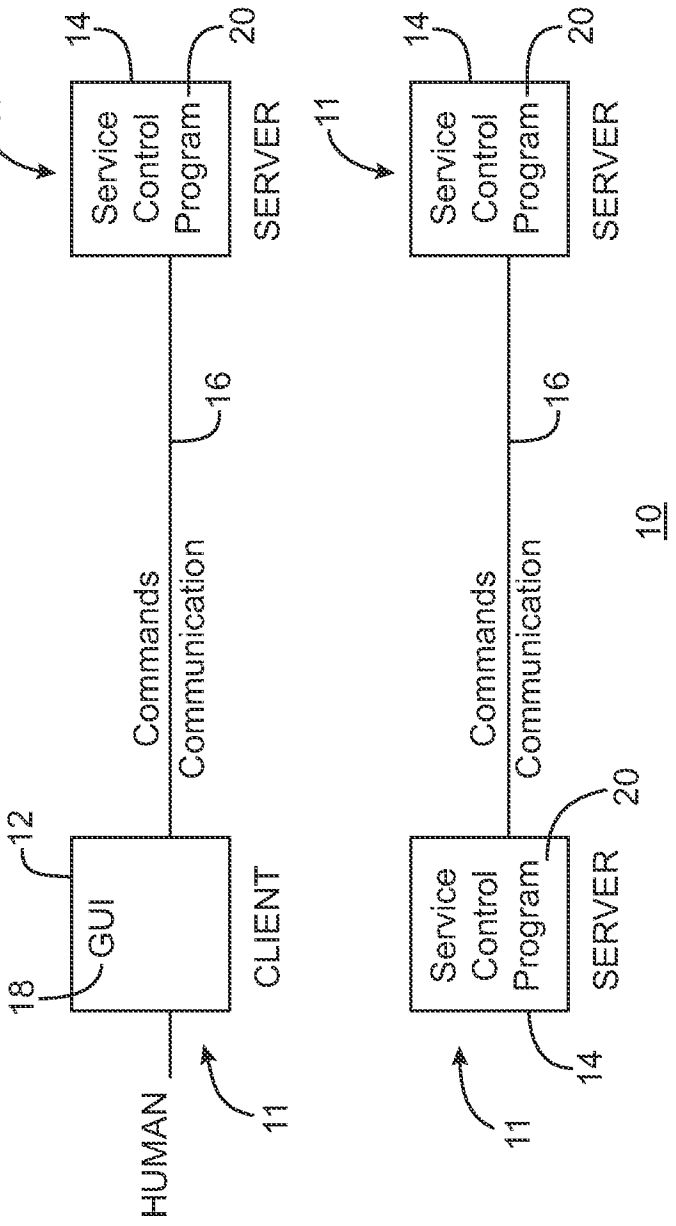

HUMAN
11
18
GUI
12
CLIENT
Commands
Communication
16
11
Service Control Program
14
20
SERVER
11
Service Control Program
14
20
SERVER
11
Service Control Program
14
20
SERVER
10

FIG. 1

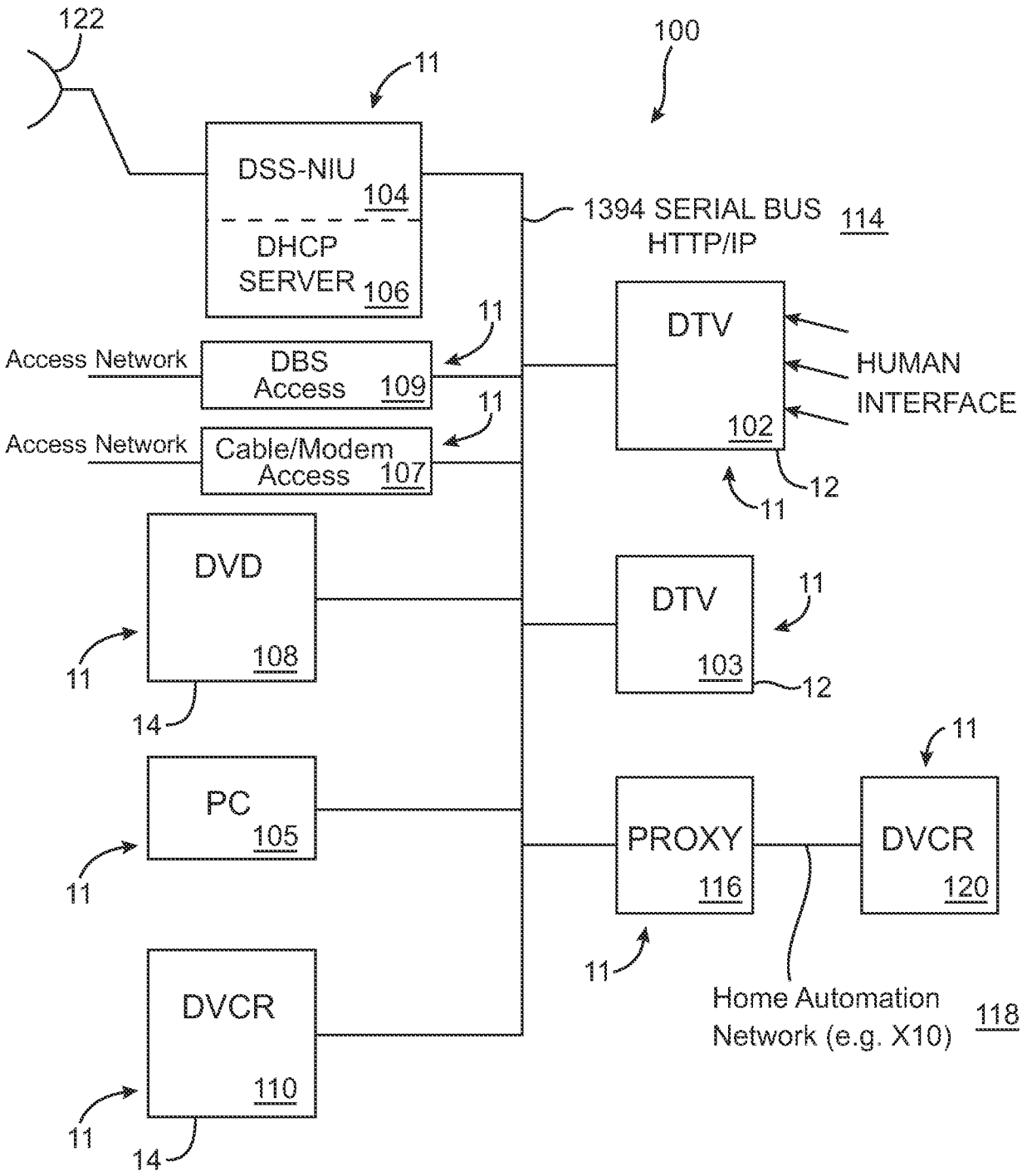

122
100
11
DSS-NIU
104
DHCP
SERVER
106
1394 SERIAL BUS
HTTP/IP
114
Access Network
DBS
Access
109
Access Network
Cable/Modem
Access
107
DTV
HUMAN
INTERFACE
102
12
DVD
108
14
DTV
103
PC
105
PROXY
116
DVCR
120
DVCR
110
Home Automation
Network (e.g. X10)
118

FIG. 2

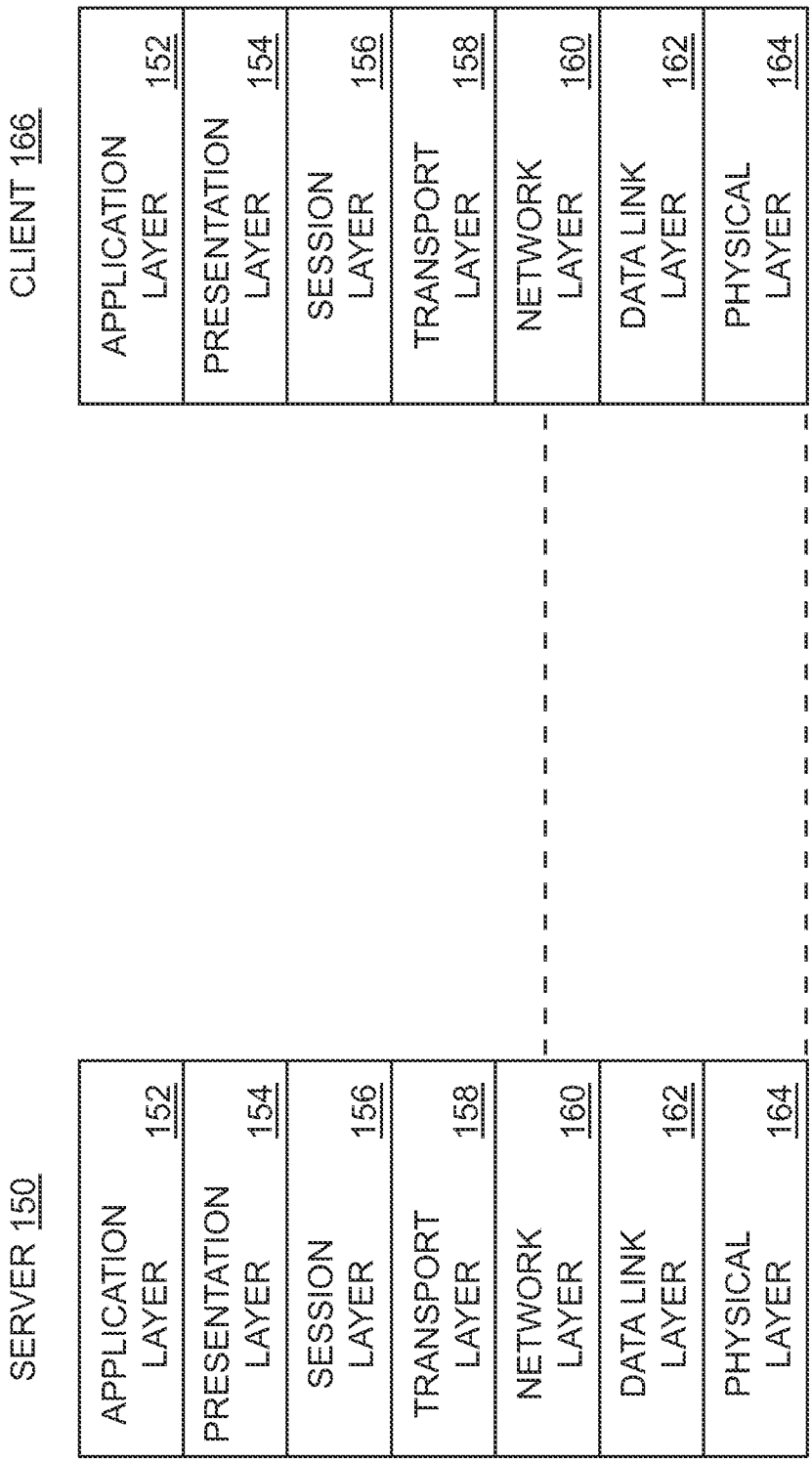

SERVER 150
APPLICATION LAYER 152
PRESENTATION LAYER 154
SESSION LAYER 156
TRANSPORT LAYER 158
NETWORK LAYER 160
DATA LINK LAYER 162
PHYSICAL LAYER 164
CLIENT 166
APPLICATION LAYER 152
PRESENTATION LAYER 154
SESSION LAYER 156
TRANSPORT LAYER 158
NETWORK LAYER 160
DATA LINK LAYER 162
PHYSICAL LAYER 164

FIG. 3

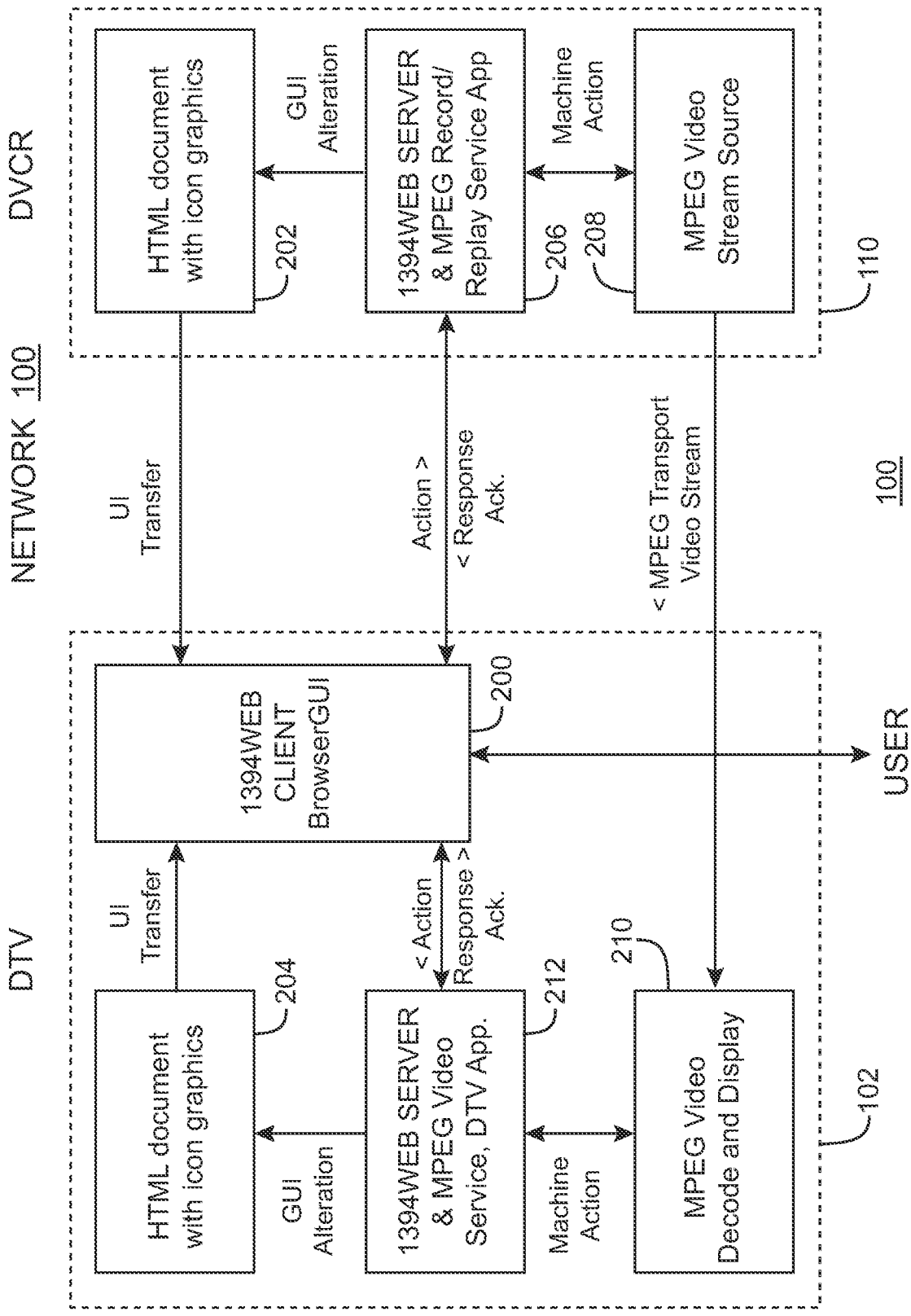

NETWORK 100
DTV
DVCR
HTML document with icon graphics
202
GUI Alteration
1394WEB SERVER & MPEG Record/ Replay Service App
206
208
Machine Action
MPEG Video Stream Source
110
UI Transfer
Action >
< Response Ack.
< MPEG Transport Video Stream
1394WEB CLIENT BrowserGUI
200
USER
100
UI Transfer
204
< Action
Response > Ack.
212
210
HTML document with icon graphics
GUI Alteration
1394WEB SERVER & MPEG Video Service, DTV App.
Machine Action
MPEG Video Decode and Display
102

FIG. 4a

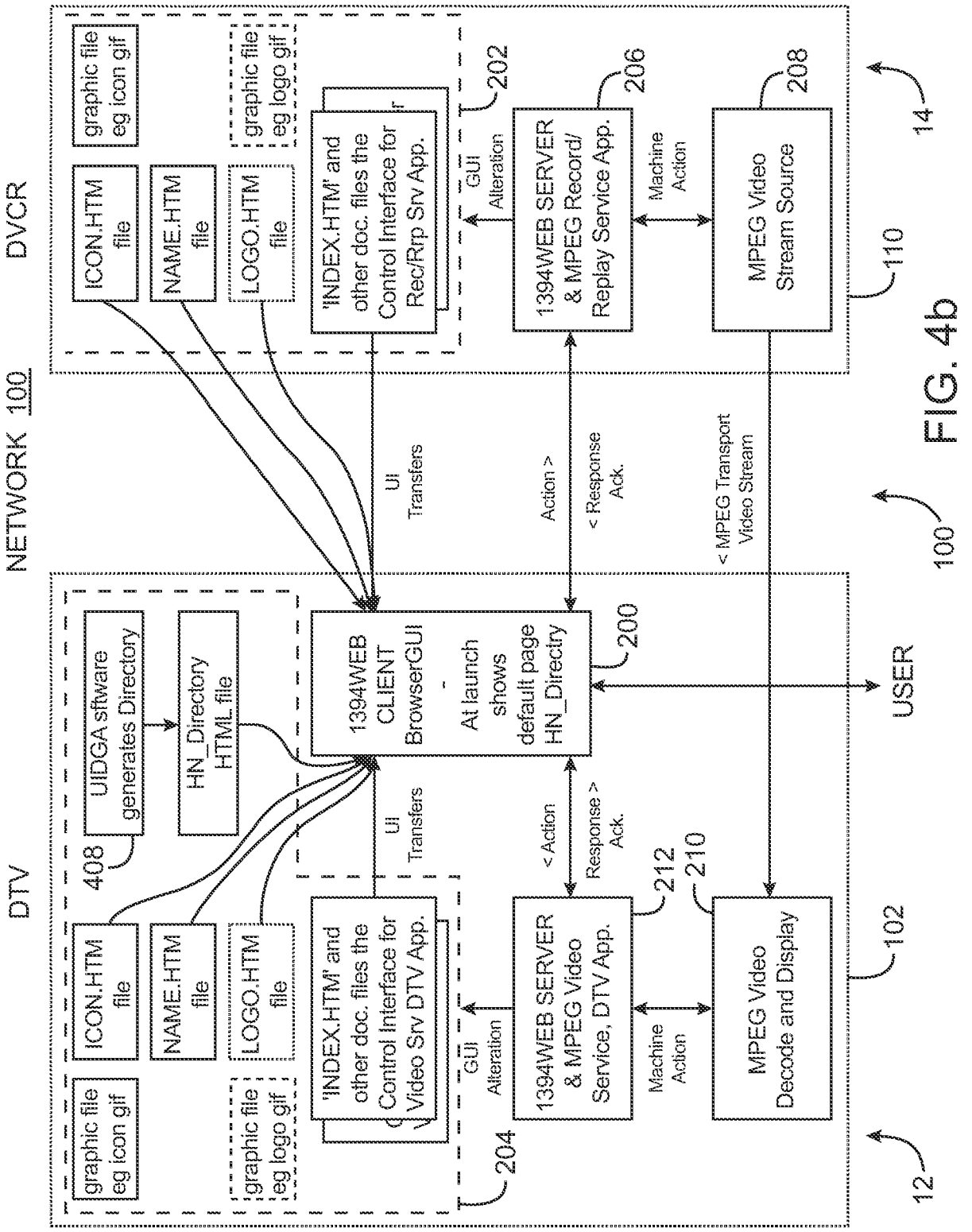

NETWORK 100
DTV
DVCR
graphic file eg icon gif
ICON.HTM file
NAME.HTM file
graphic file eg logo gif
LOGO.HTM file
UIDGA sftware generates Directory
408
HN_Directory HTML file
1394WEB CLIENT BrowserGUI - At launch shows default page HN_Directry
200
'INDEX.HTM' and other doc. files the Control Interface for Video Srv DTV App.
UI Transfers
GUI Alteration
204
< Action
Response > Ack.
212
210
1394WEB SERVER & MPEG Video Service, DTV App.
Machine Action
MPEG Video Decode and Display
102
12
'INDEX.HTM' and other doc. files the Control Interface for Rec/Rrp Srv App.
202
1394WEB SERVER & MPEG Record/ Replay Service App.
206
Machine Action
MPEG Video Stream Source
208
110
14
Action >
< Response Ack.
< MPEG Transport Video Stream
USER
100

FIG. 4b

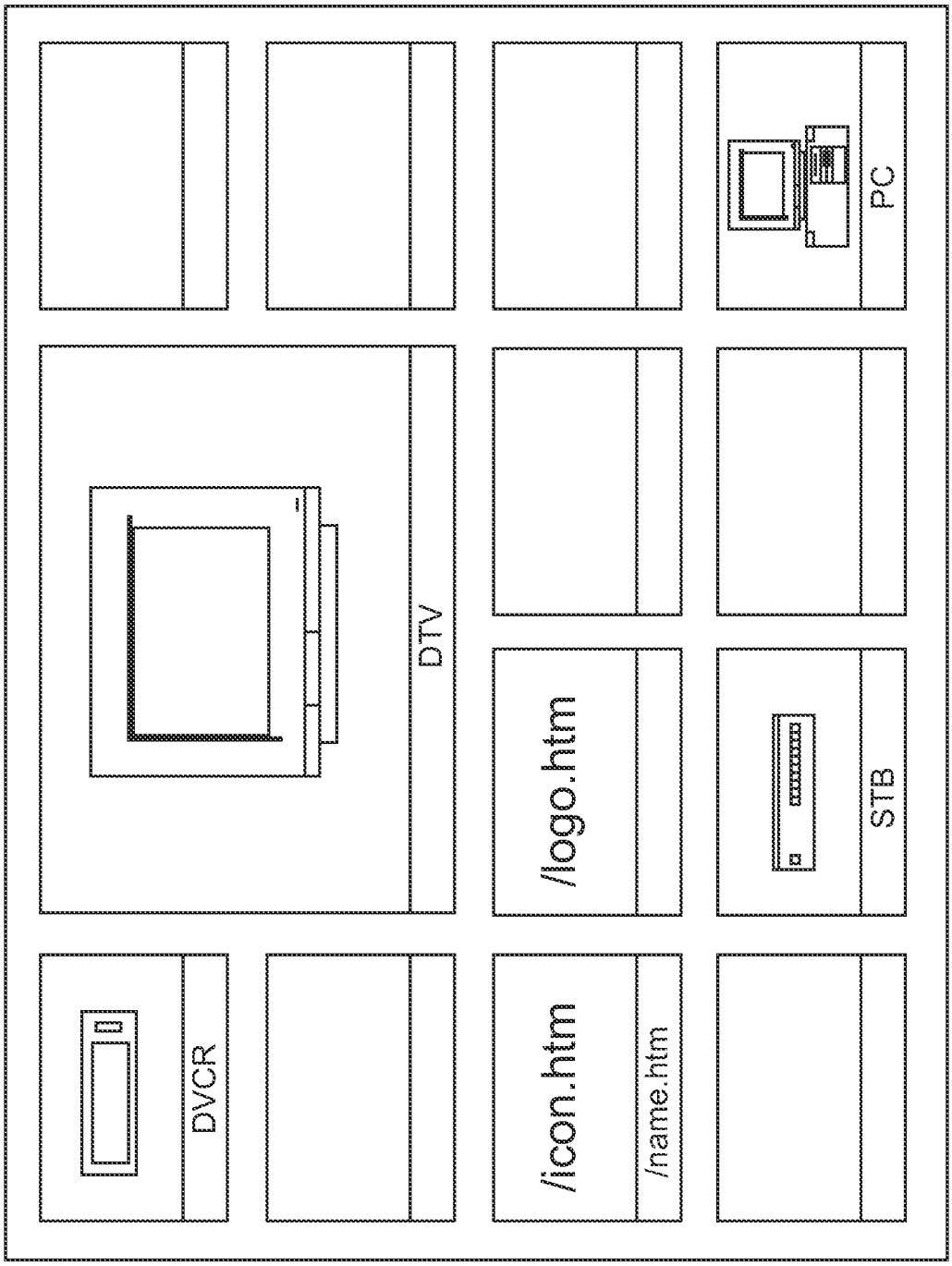

DVCR
DTV
/icon.htm
/name.htm
/logo.htm
STB
PC
Example Network Top-level Devices GUI
220

FIG. 5

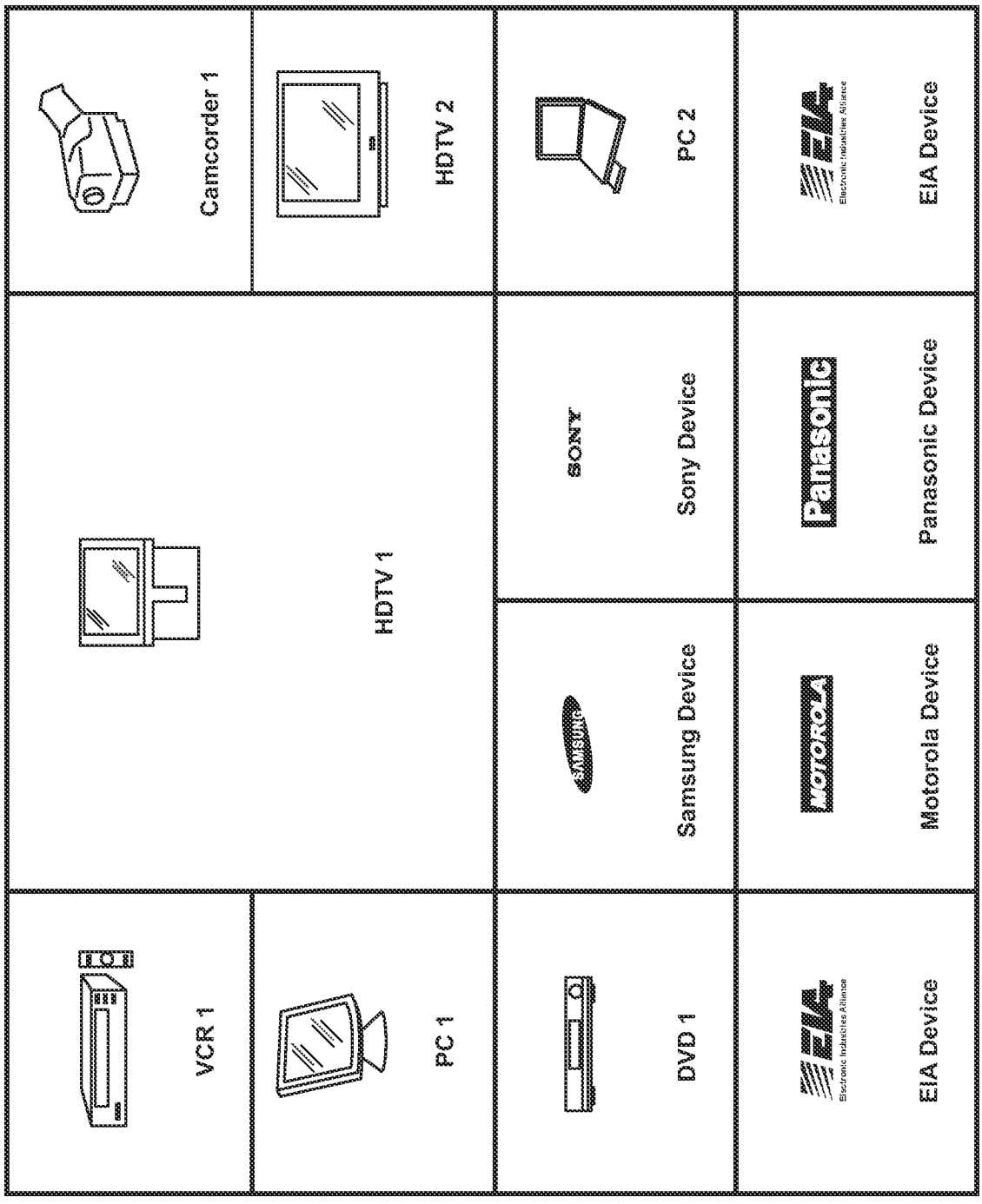

Camcorder 1
HDTV 2
PC 2
EIA Device
HDTV 1
SONY
Sony Device
Panasonic
Panasonic Device
Samsung Device
Motorola Device
VCR 1
PC 1
DVD 1
EIA Device
220

FIG. 6

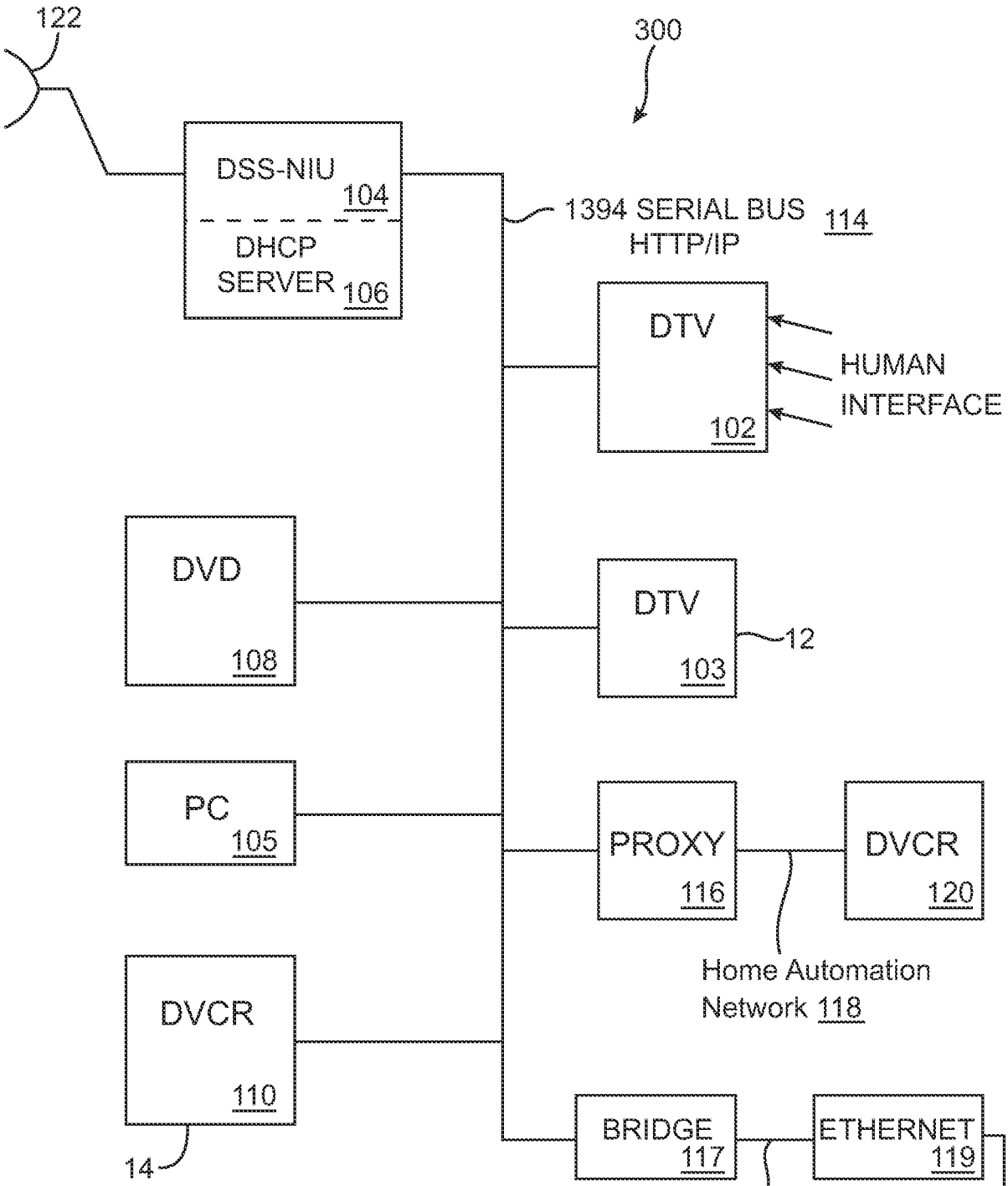
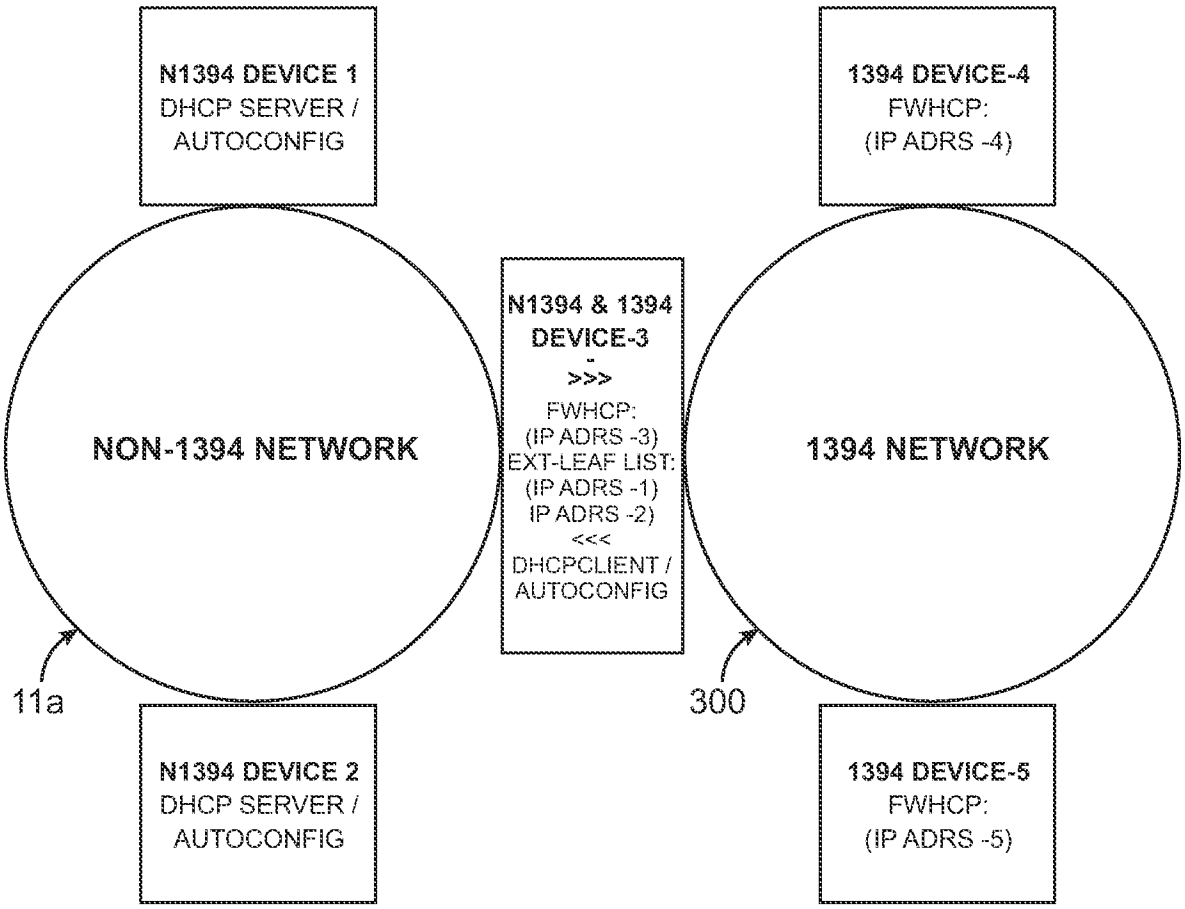

122
300
DSS-NIU
104
DHCP
SERVER
106
1394 SERIAL BUS
HTTP/IP
114
DTV
102
HUMAN
INTERFACE
DVD
108
DTV
103
12
PC
105
PROXY
116
DVCR
120
Home Automation
Network 118
DVCR
110
14
BRIDGE
117
ETHERNET
119
BUS
121
Cable - TV
Network
115

FIG. 7



1394 and Non-1394 Network Scenario for address management

FIG. 8

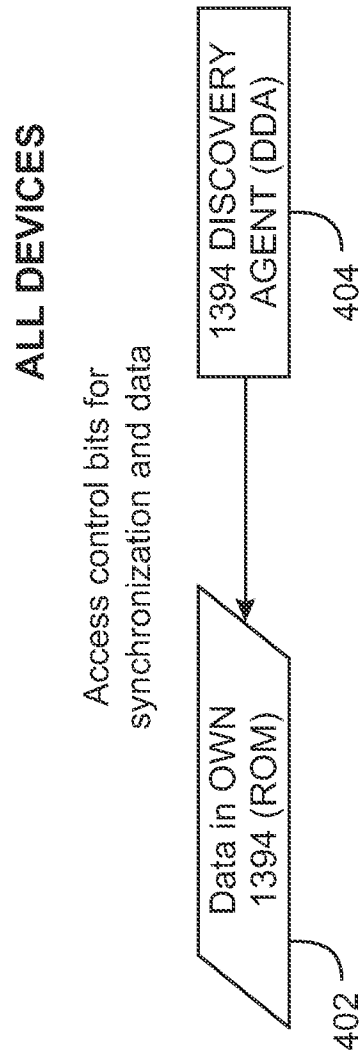

ALL DEVICES
Access control bits for synchronization and data
1394 DISCOVERY AGENT (DDA)
404
Data in OWN 1394 (ROM)
402

FIG. 9a

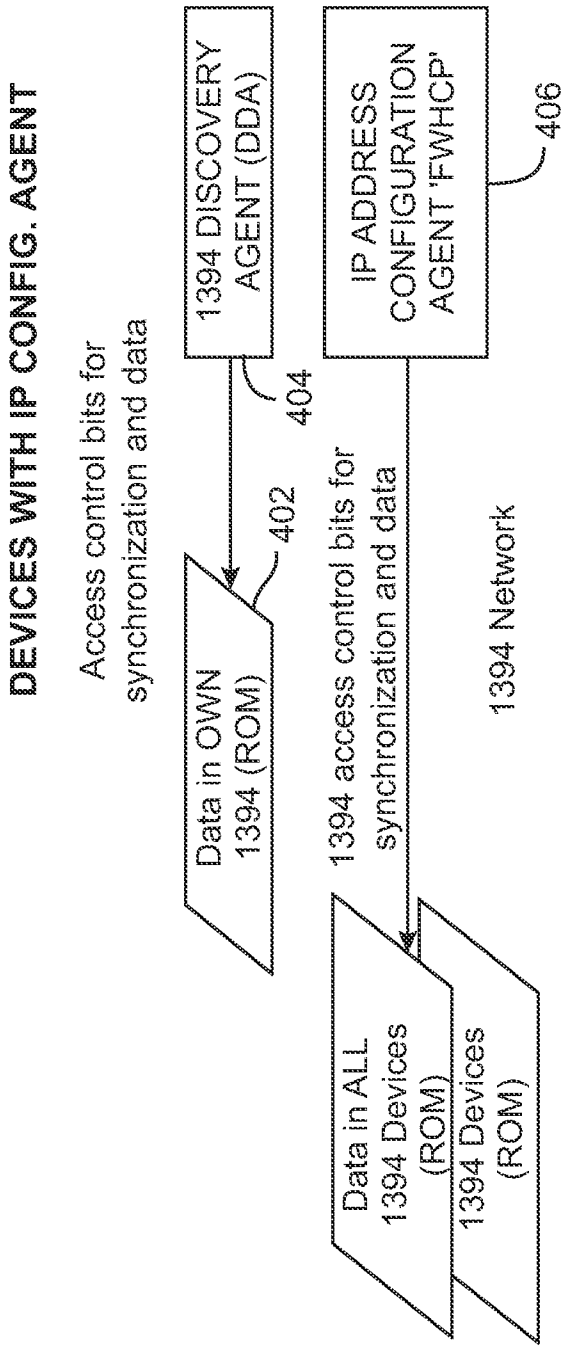

DEVICES WITH IP CONFIG. AGENT
Access control bits for synchronization and data
1394 DISCOVERY AGENT (DDA)
404
IP ADDRESS CONFIGURATION AGENT 'FWHCP'
406
Data in OWN 1394 (ROM)
402
1394 access control bits for synchronization and data
1394 Network
Data in ALL 1394 Devices (ROM)
1394 Devices (ROM)

FIG. 9b

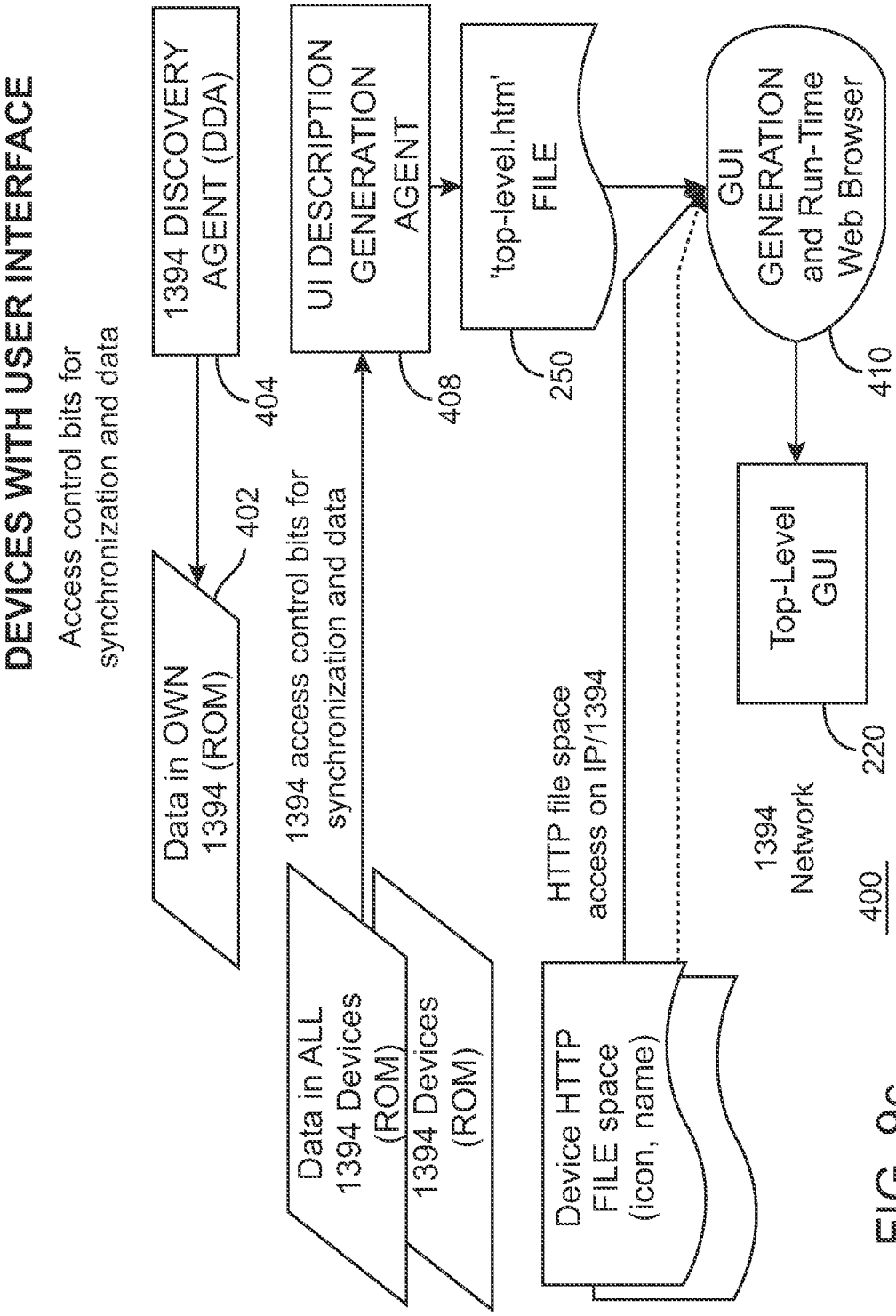

DEVICES WITH USER INTERFACE
Access control bits for synchronization and data
Data in OWN 1394 (ROM)
402
1394 DISCOVERY AGENT (DDA)
404
1394 access control bits for synchronization and data
UI DESCRIPTION GENERATION AGENT
408
'top-level.htm' FILE
250
HTTP file space access on IP/1394
GUI GENERATION and Run-Time Web Browser
410
Data in ALL 1394 Devices (ROM)
1394 Devices (ROM)
Device HTTP FILE space (icon, name)
1394 Network
Top-Level GUI
220
400

FIG. 9c

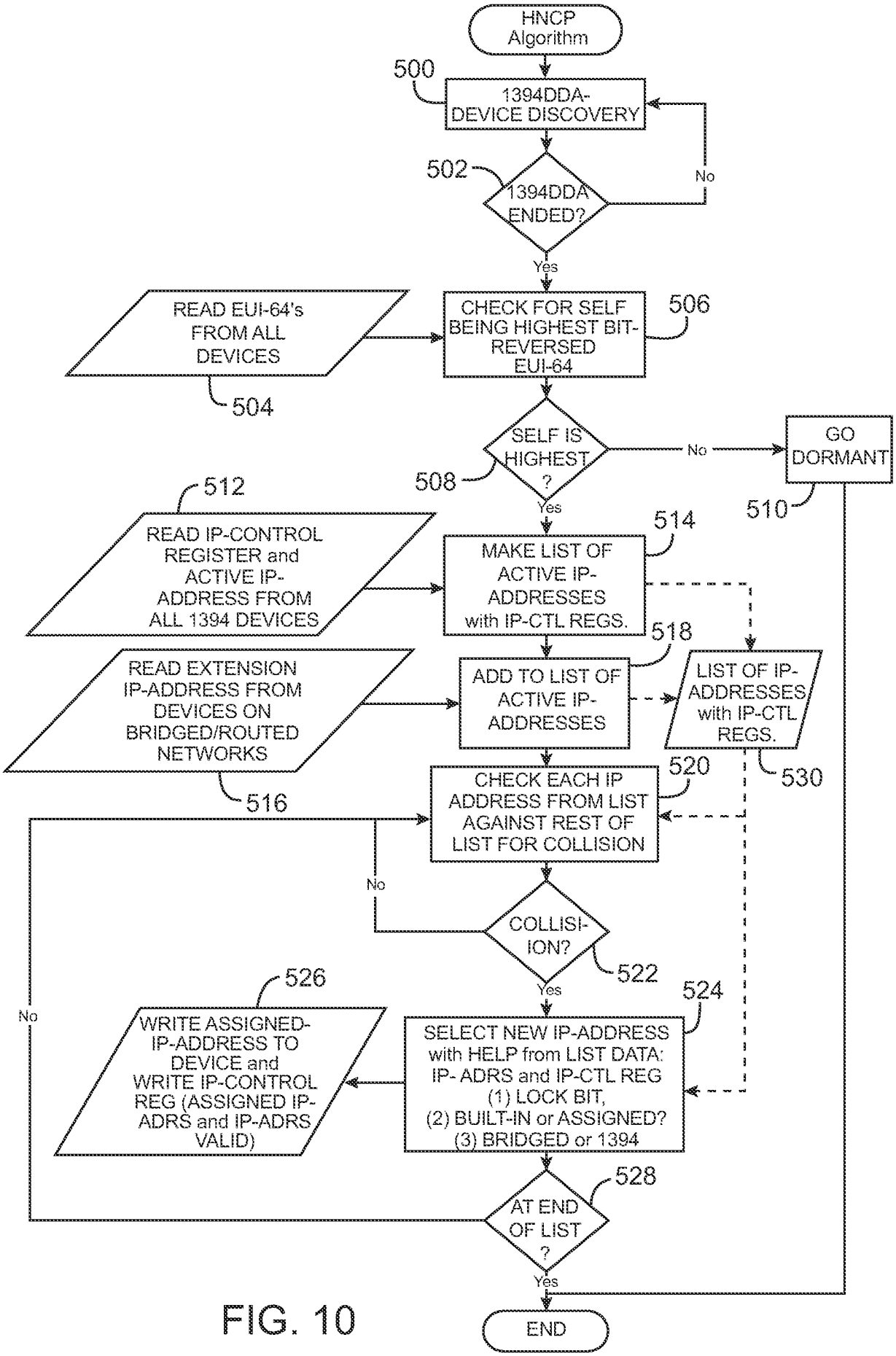

HNCP Algorithm
500
1394DDA-DEVICE DISCOVERY
502
1394DDA ENDED?
No
Yes
READ EUI-64's FROM ALL DEVICES
504
CHECK FOR SELF BEING HIGHEST BIT-REVERSED EUI-64
506
SELF IS HIGHEST ?
508
No
GO DORMANT
510
Yes
512
READ IP-CONTROL REGISTER and ACTIVE IP-ADDRESS FROM ALL 1394 DEVICES
514
MAKE LIST OF ACTIVE IP-ADDRESSES with IP-CTL REGS.
518
READ EXTENSION IP-ADDRESS FROM DEVICES ON BRIDGED/ROUTED NETWORKS
516
ADD TO LIST OF ACTIVE IP-ADDRESSES
LIST OF IP-ADDRESSES with IP-CTL REGS.
530
520
CHECK EACH IP ADDRESS FROM LIST AGAINST REST OF LIST FOR COLLISION
No
COLLISI-ION?
522
Yes
524
526
No
WRITE ASSIGNED-IP-ADDRESS TO DEVICE and WRITE IP-CONTROL REG (ASSIGNED IP-ADRS and IP-ADRS VALID)
SELECT NEW IP-ADDRESS with HELP from LIST DATA: IP- ADRS and IP-CTL REG (1) LOCK BIT, (2) BUILT-IN or ASSIGNED? (3) BRIDGED or 1394
528
AT END OF LIST ?
Yes
END

FIG. 10

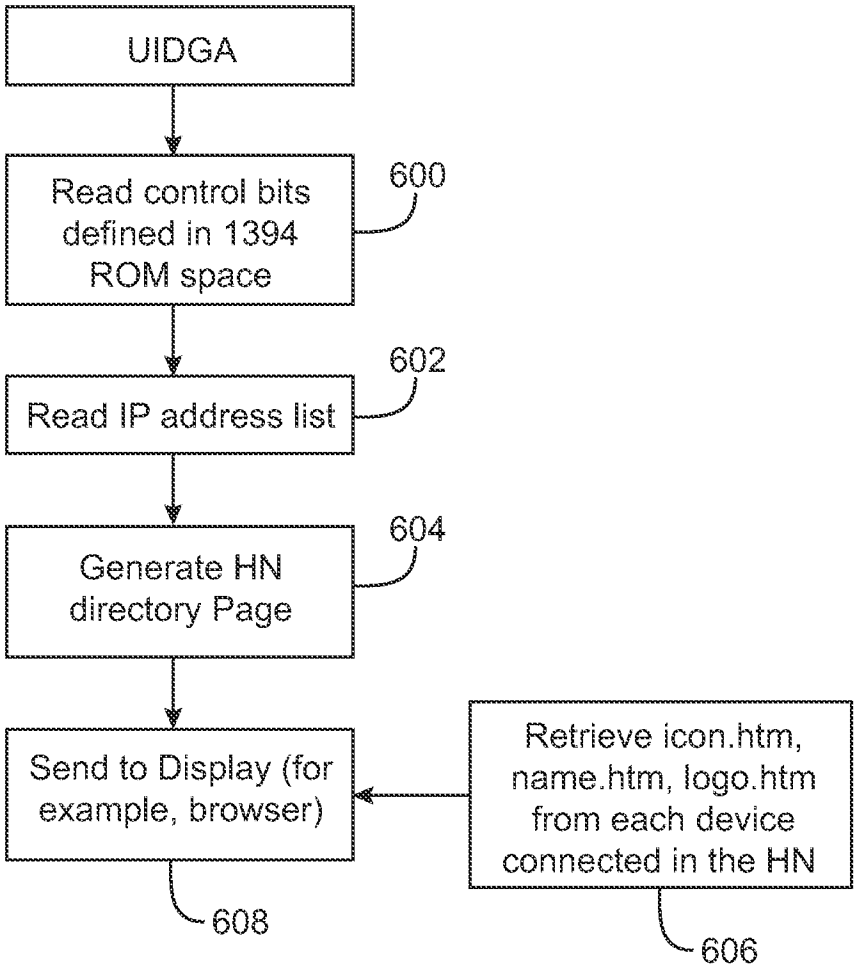

UIDGA
Read control bits defined in 1394 ROM space
600
Read IP address list
602
Generate HN directory Page
604
Send to Display (for example, browser)
608
Retrieve icon.htm, name.htm, logo.htm from each device connected in the HN
606

FIG. 11